279. CHUCKS OR SOCKETS.

89 433/128

EXAMINERS' ROOM.

Hand Pieces

4990038
408/127,226
246

279
269

(No Model.)

C. M. RICHMOND.

DENTAL DRILL.

No. 256,050. Patented Apr. 4, 1882.

Fig. 1.

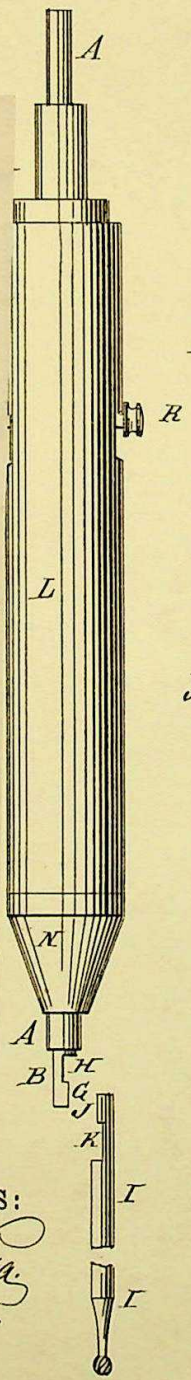


Fig. 3.

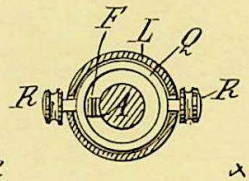


Fig. 4.

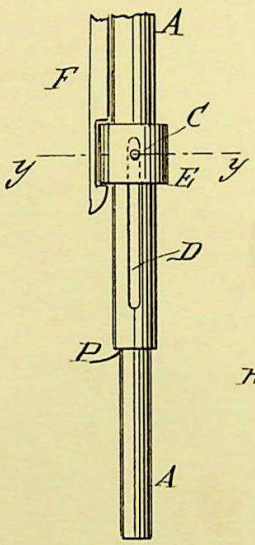


Fig. 5.

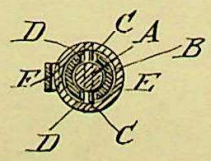
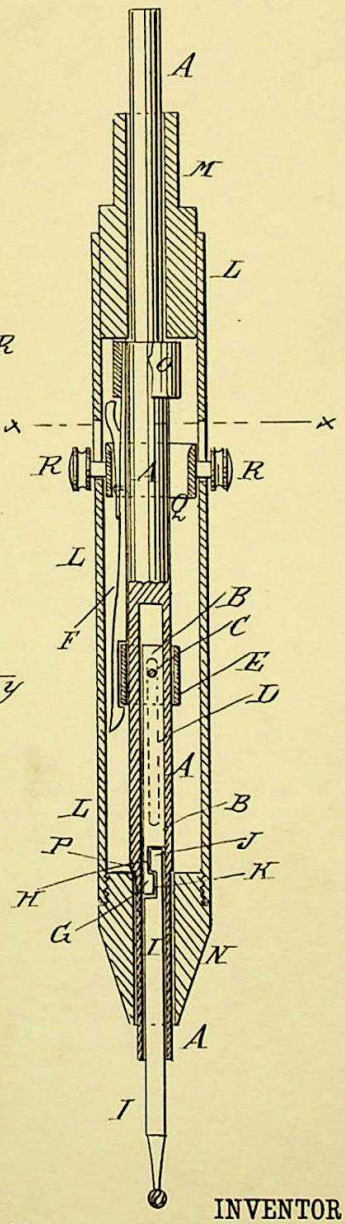


Fig. 2



256,050. DENTAL DRILL. CASSIUS M. RICHMOND, New York, N. Y. Filed Sept. 15, 1881. (No model.)

Claim.—1. The combination, with the slotted hollow rod A, of the stem B, having its forward end halved or rabbeted and a groove across the inner part of the rabbet, the pin C, the ring E, and the spring-catch F, substantially as herein shown and described, whereby a tool can be readily attached and detached and will be securely held, as set forth.

2. The combination, with the tool-holding rod A and the spring-catch F, of the hand-piece L M N, the interior ring, Q, and the pins R, substantially as herein shown and described, whereby the tool-holding rod can be conveniently handled and the tool readily attached and detached, as set forth.

WITNESSES:

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C. Sedgwick

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C. M. Richmond

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26

UNITED STATES PATENT OFFICE.

CASSIUS M. RICHMOND, OF NEW YORK, N. Y.

DENTAL DRILL.

SPECIFICATION forming part of Letters Patent No. 256,050, dated April 4, 1882.

Application filed September 15, 1881. (No model.)

To all whom it may concern:

Be it known that I, CASSIUS M. RICHMOND, of the city, county, and State of New York, have invented a new and useful Improvement in Tools and Tool-Holders, of which the following is a full, clear, and exact description.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of my improvement, shown as provided with a hand-piece and with the tool disconnected. Fig. 2 is a sectional side elevation of the same as arranged for use. Fig. 3 is a sectional plan view of the same, taken through the line *x x*, Fig. 2. Fig. 4 is a side elevation of a part of the same, showing the spring-catch enlarged. Fig. 5 is a sectional plan view taken through the line *y y*, Fig. 4.

The object of this invention is to provide tools and tool-holders constructed in such a manner that the tools can be readily attached and detached and will be securely held.

The invention consists in the combination, with a slotted hollow rod, of a stem having its forward end halved or rabbeted and a groove across the inner part of the rabbet, a cross-pin, a sliding ring, and a spring-catch, whereby a tool can be readily attached and detached and will be securely held; and also in the combination, with the tool-holding rod and the spring-catch, of a hand-piece and an interior ring and its pins, whereby the tool-holding rod can be conveniently handled and the tool readily attached and detached, as will be hereinafter fully described.

I will describe my improvement as applied to dental tools, but do not limit myself to that use, as it can be applied with equal advantage to various other kinds of tools.

A is a rod, one end of which is designed to be connected with the flexible shaft of a dental drill. The other end of the rod A is perforated longitudinally, and in the said perforation is placed a rod or stem, B.

To the inner part of the stem B is attached a cross-pin, C, the ends of which project through slots D in the rod A, and are attached to a sleeve, collar, or ring, E, sliding freely upon the said rod A. The slots D are made of such a length that the stem B can be slid outward so far that its end will project beyond the end of the rod A, as shown in Fig. 1. The stem B is held in place, when pushed inward, by a spring-catch, F, the shoulder of which engages with the ring E. The end of the spring-catch F is beveled upon the inner side, so that when the stem B is pushed inward the ring E will rise and pass the said end. The outer end of the stem B is halved, and in the inner part of the rabbet or flat surface G thus formed is made a cross-groove, H, as shown in Figs. 1 and 2.

I is the tool, the end of the shank of which is halved, and in the inner part of the flat surface or rabbet J thus formed is made a cross-groove, K. The rabbets G and J are made of equal length, and the grooves H K are of a width equal to half the length of the rabbets G J, so that the ends of the rod B and tool I will interlock with each other and leave their outer surfaces flush and smooth. With this construction, when the tool I and stem B have been interlocked and pushed inward it will be impossible for the said tool to become detached accidentally, and at the same time the tool will be held firmly, so that it can do good work.

The spring-catch F is fulcrumed to the rod A, and its rear end rises from the said rod, as shown in Fig. 2, so that the said catch can be disengaged from the ring E by pressing the said rear end inward.

When the invention is applied to a dental drill the rod A is provided with a hand-piece, within which it revolves freely, and which is formed of a tubular center piece or body, L, and end pieces, M N. The rear end piece, M, is perforated to receive and fit upon the rod A, and is firmly attached to the rear end of the tube L. The forward end piece, N, is perforated to receive and fit upon the rod A, has its forward end tapered so that it will not interfere with the necessary control of the tool, and has a screw-thread upon its rear end to fit into a screw-thread in the inner surface of the forward end of the tube L. The hand-piece L M N is kept from forward movement upon the rod A by a collar, O, shrunk or driven upon or otherwise secured to the said rod, and

against which the inner end of the end piece M rests. The hand-piece L M N is kept from rearward movement upon the rod A by a shoulder, P, formed upon the said rod, and against which the inner end of the end piece N rests.

Q is a ring placed within the tube L and connected with it by two pins, R, attached to the said ring and projecting through short longitudinal slots in the opposite sides of the said tube L. The pins R can have knobs attached to their outer ends for convenience in operating them. The ring Q surrounds the rod A and the pivoted part of the spring-catch F, so that when the said ring Q is drawn to the rearward by means of the pins R it will press the raised rear end of the said spring-catch F inward, and thus release the ring E and the stem B and allow the tool I to be detached.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with the slotted hollow rod A, of the stem B, having its forward end halved or rabbeted and a groove across the inner part of the rabbet, the pin C, the ring E, and the spring-catch F, substantially as herein shown and described, whereby a tool can be readily attached and detached and will be securely held, as set forth.

2. The combination, with the tool-holding rod A and the spring-catch F, of the hand-piece L M N, the interior ring, Q, and the pins R, substantially as herein shown and described, whereby the tool-holding rod can be conveniently handled and the tool readily attached and detached, as set forth.

CASSIUS M. RICHMOND.

Witnesses:
W. W. SHEFFIELD,
B. W. LEONARD.